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**SOME REFLECTIONS ON PSYCHOLOGICAL ASSESSMENT FOR EARLY  
INTERVENTION IN DEVELOPING  
COUNTRIES WITH SPECIAL REFERENCE TO ZAMBIA**

**Munhuweyi Peresuh  
Department of Educational Foundations  
Faculty of Education  
University of Zimbabwe**

**Abstract**

Clinicians and educators must assess functioning levels of children with various special educational needs for diagnostic, placement and remedial purposes. There is no doubt that subsequent programming efforts and perceptions of the individual's capacities are greatly influenced by assessment results, coupled with other sources of valuable information available which must be effectively utilized. In this direction, assessors must be aware of their responsibility to carefully provide accurate, descriptive, and thorough evaluations following the ethical practices of their professions and the procedures outlined in test manuals. This paper seeks to define assessment in Special Education. The goals and methods of assessment are presented and discussed with special reference to Zambia. The relevance of western oriented assessment tools to developing countries is summarised and recommendation are made.

**The Context of Assessment**

The daily life of a young child is normally embedded within several layers of social organization. Playmates and regular care givers (who may include the child's grandmother, elder sister, aunt or housemaid at least as often as the biological mother in Zimbabwe) have privileged access to the child. Other things being equal, these are the people best placed to observe the child's behaviour and to influence it. Yet in formal encounters with the frontline personnel of health, education and social services, these very important people can easily be 'up staged', or metaphorically phased into the background, by family authority figures such as the father or an educated distant relative. If the child's case is referred to a back-up professional with advanced technical training in assessment and/or intervention techniques, the clinical encounter may be mediated by a further layer of authority figures within the bureauc-



racy of the service in question or (in the case of a home visit) within the community's system of local government. Each of these layers contains potential 'agents' for the implementation of an early intervention programme, and their various needs for information, guidance and material resources from part of the subject for assessment as a guide to effective intervention.

### Reasons For Assessment

Disability can be understood as a process which begins with organic impairment (or genetic or environmental origin). Impairment, if it is not corrected or compensated for, gives rise to functional disability. Disability, depending on its degree of severity, can often constitute a social handicap unless remedial steps are taken (such as the supply of prostheses or the provision of special education). But the degree of disadvantage constituted by the handicap will also depend on the attitudes and behaviour of the rest of society towards the disabled individual (W.H.O.,1985). Early intervention strategies tend to concentrate on second-level prevention designed to reduce or eliminate the functional disability arising from organic impairment and on third-level prevention designed to provide remedial help to reduce the degree of functional disability. The earlier such steps are taken, the greater their effectiveness and hence the importance of early detection and diagnosis of organic impairments.

Three different purposes of assessment may be distinguished, each with somewhat different implications for the most appropriate type of assessment:

- (a) Detecting problems, and identifying clients with special needs.

This detection/identification function of assessment is relevant to two complementary sets of needs. Those of central planners estimating prevalence and planning service provision, and those of regular care givers in search of appropriate, effective and accessible assistance.

- (b) Diagnosing causes, and prescribing appropriate types of intervention.

This diagnostic/prescriptive function is most relevant to the work of personnel responsible for the design and supervision of individual programme plans. In countries which have only small numbers of highly trained professionals to deploy, this work will normally be largely in the hands of community-based rehabilitation workers, many of whom have to work on a part-time or voluntary basis (W.H.O.,1985).

- (c) Monitoring change, and evaluating the impact of intervention.

The monitoring/evaluation function is an essential feature of individualised education and training programmes. Increasingly, responsibility for this type of intervention is delegated by professionals to members of a young child's family, who are regarded as partners in the rehabilitation process. The professional only see the child intermittently and may use these opportunities to draw the family's attention to signs of progress or deterioration and to suggest next steps, higher-level goals, new emphasis or alternative methods. In addition, family members are often encouraged to maintain records to monitor their child's progress themselves, as a way of enhancing family motivation. One study in England concluded that such record keeping was perceived by many of families as an unwelcome burden (Sandar, 1984). On the other hand a programme of home-based education in Karnataka in Brazil has reported successful enabling non-literate parents to monitor progress by dropping seeds into a transparent jar (Rao, 1986).

#### Approaches To Assessment

Three main approaches will be distinguished: (a) norm-referenced, (b) profile-referenced and (c) criterion-referenced, each of which is better suited to a different type of assessment function.

- (a) The most widely publicised form of psychological assessment has been the I.Q. test. Performance by the individual client is assigned a score relative to that of a large standardisation sample of the general population. In the Stanford-Binet, the quotient is computed as a ratio between the child's chronological age and the age at which majority of children attain such a score (designated as the 'mental age' of the client). In the Wechsler scales, the quotient is computed in relation to the statistical distribution of scores by children of the same chronological age as the client in the standardization sample. A client whose score is more than three standard deviations below the mean score for his/her age is assigned an I.Q. less than 50, which is generally taken as an indication of serious mental retardation (Clarke & Clarke, 1985). Given the methods used to standardise these 'norm-referenced' tests, this means that persons classified as seriously mentally retarded/disabled/handicapped make up less than 0.5 percent of the general population, while per

sons with a mild degree of the conditions (with an I.Q. between 50 and 70) make up between two and three percent. Although the major I.Q. tests only purport to measure intelligence in children over the age of 3-5 years, developmental quotients (DQ) are calculated in essentially similar norm-referenced manner on most of the major published infant scales, e.g. the Bayley scales and the Denver Developmental Screening Test.

I.Q. tests have been the subject of great controversy. They tend to simplify the concept of intelligence by reducing it to a single dimension and to present an unwarranted image of rigorously quantified, objective measurement. Moreover they have frequently been abused as a way of legitimating rigid and/or ethnically discriminatory and/or socially unjust policies for allocating educational opportunities. On the other hand, if used in a cautious and responsible manner, they remain one of the more impartial methods for estimating the benefits for different individuals of certain types of educational programme, and a convenient form of global summary of an individual's level of functioning across a standard set of reference tasks.

One of the most serious objections to the use of I.Q. test in Developing countries is that few of them have been properly adapted and standardized on appropriate populations. It is highly misleading to interpret the score on such tests with reference to norms derived from a culturally alien standardization sample. Several different strategies for dealing with this problem have been discussed elsewhere (Serpell, 1986). Many clinicians make *ad hoc* allowances or test modifications, but these practices violate essential assumptions on which the tests are based. Systematic local standardization of adapted foreign tests or on new tests using concepts, methods and materials derived from the local culture is a major undertaking which requires a number of many-years to accomplish. Most of the test development in Africa has been centered around issues of educational and occupational selection. Such tests are 'validated' by their capacity to predict performance in specific, narrowly defined contexts of school or work, rather than by their relevance to the actual socio-cultural context of the child's developmental adaptability (Serpell, 1986). As a result, they are quite inappropriate for the clinical assessment of intellectual disability especially at early ages.



The method of basing assessment on a set of reference norms has a number of valuable applications outside the field of I.Q. tests. Growth charts, for instance, which form one of the pillars of UNICEF's strategy of GOBI + FFF Morely (1984) are based on the principle of comparing a child's weight to the statistical distribution of weights of children at that age in a standardization sample. The upper border of the 'road to health' represents the average (mean and median) weight of such a sample and its lower border represents two standard deviations (or some other arbitrary proportion) below the mean. A moment's reflection will make it clear that for the purpose of detecting problems, whether these are biological (such as body weight, upper arm circumference, heart rate, blood pressure, etc.) or psychological, it is

necessary to establish a cut-off point in relation to the range of 'normal' variation. Thus a certain element of norm-referenced assessment is logically essential to the detection of those cases which are to be regarded as problems deserving further investigation.

It is, however, often more important to compare an individual's present condition to what is normal for him or her than to other individuals. Thus in the case of body weight, a slowing down in the rate of growth or a marked drop in weight since the last visit to the clinic are more significant indicators of a nutritional problem than a graph which rises steadily while lying below the bottom edge of the 'road to health'. Similarly if a child starts to walk independently or to talk, and later loses the ability to do so, this is a powerful indicator in the case history that some organic impairment has occurred.

- b) In order to diagnose the cause of such impairment, it is usually informative to compare the level of development of one function to that of others. Selective impairment of certain motor or sensory functions for instance often serves as pointer to localised neurological damage. Intelligence is often assessed in children referred because of behavioural deviance in order to 'rule out' (or to confirm a suspicion of) intellectual disability as the primary cause of social or emotional maladaptation.

Several domains of psychological functioning are usually examined in assessing intellectual disability, and these are discussed in the next section.

The profile of an individual's relative strengths and weaknesses across these various domains provides a basis for setting priorities in the design of an intervention programme. Educationally-oriented assessment schemes such as Gunzburg's Progress Assessment Charts and the Portage Guide to Early Education Checklist spell out a sequence of behavioural competencies in the order in which they are normally attained in the course of a child's development. An individual programme plan can then be designed to focus on assisting the child to master 'the next step on the ladder' Sandow (1984) of developmental progress. Profile-referenced assessment can thus serve both as a diagnostic purpose and a prescriptive one as a guide to intervention.

In addition to identifying major weaknesses and needs, the profile may also be used to identify strengths on which a training programme can build. In home-based learning a decision of crucial importance will be whom to entrust with the responsibility of implementing specific intervention procedures. Failure to identify an effective and committed resource-person within the child's immediate family setting was found in Zambia to be a common weakness in individual programme plans designed on the basis of rapid preliminary assessment (Serpell & Nabuzoka, 1985). Ongoing research is exploring ways of assessing in detail the potential of a child's regular effective home environment for the promotion and support of his or her healthy psychological development (Serpell, 1985).

- c. A third major approach to assessment is derived from the behaviourist tradition psychology. Criterion-referenced tests examine performance in relation to the intrinsic content of a given task. Assessment of how well a child can walk or talk or wash herself is phrased in terms of the percentage of elements of the task the child has mastered, without reference to other aspects of her profile of abilities or to the age at which other children achieve a given level of competence on the task. Criterion-referenced assessment is especially helpful for monitoring a child's progress towards chosen goals and for evaluating the impact of a particular intervention of the competence it is designed to promote. The selection of items for inclusion in such a test is therefore generally derived from task analysis of behaviours which have been



selected as objectives of an instructional curriculum. Although no standardisation is required for the construction of criterion-referenced tests, it is unwise to regard them as self-justifying. In order to be worth assessing, a skill should have functional value within an ecological setting relevant to the child's present or probable future life situation (Baine, 1986).

## Domains for the Assessment of Severe Intellectual Disability

A recent consultation among psychiatrists and psychologists with a special interest in intellectual and other childhood stabilities revealed a high level of consensus about the major dimensions of assessment for arriving at a 'diagnosis' of 'severe mental retardation.' Two alternative schemes were considered for classifying the domains of behaviour on which they focus their attention (see Fig. 1) below:

Figure 1: Domains of behaviour for the assessment of severe intellectual disability

### A Set of five domains

Self-help Maintenance habits & skills	Social habits habits & skills	Communication habits & skills (language)	Rate of Learning/ understanding new tasks	Physical Coordination
M	S	C	L	P
				(Extra)
Self-help	Social Cooperation		Learning & Understand	
Domestic Responsibilities	Communication	Motor Coordination		Organic Signs & Syndromes
		Attainment Strategies		Gross Fine
1	2	3	4	5
				6
				7
				8
				9

Most of the norm-referenced tests of intelligence centre on the domain of learning and understanding new tasks and also include some items of sub-scales relevant to communica-

tion skills and to fine motor coordination. But they have little to offer as a guide to the form of ameliorative intervention.

Developmental check-lists include gross motor skill achievements as 'milestones' and these are conceptually easy to relate to growth-charts as a criterion for routine screening. However, the range of what is considered normal is often so wide as to make their use for fine-grain analysis difficult (e.g. Bayley's widely used scale gives the range 9-17 months for 'walks alone'). Another problem is that the average differences between contrasting cultural groups can be larger than the average effects of mild or moderate malnutrition. Moreover, it is far from clear that delayed attainment of such milestones is predictive of low levels of skill at later ages (Connolly, 1981). Criterion referenced schemes for the assessment of specific motor skills are of much greater value as a guide to intervention by physiotherapists. Since these schemes are age-independent and apply to functions of cross-culturally universal relevance to everyday activities, these elements which involve little or no specialised apparatus can probably be transposed without reservation to the African region.

Many of the behavioural objectives listed under 'self-help' in the Western checklists are inappropriate for the eco-cultural contexts of rural Africa, where children do not have shoelaces to tie, tooth-brushes or forks to handle, staircases to climb or pencil and paper for drawing. It does not, however, require much imagination to identify analogous 'self help' behaviours with local functional relevance. Task analyses of drinking from a cup or putting on a dress are illustrated in the WHO training packages for community-based rehabilitation. More elaborate examples feature in Zimbabwe's ZIMCARE's series of instructional videotapes. This is an easy domain to explain and to justify to families with little formal education, the early stages of mobilising a home based learning programme, provided that the child manifests significant difficulties with at least one basic self help skill.

Language is probably the single most important domain, since it holds the key to both learning/understanding and social cooperation. It is not as easy to analyse behavioural objectives as the self help domain, and parents with little formal education often seem to be reactively insensitive to their child's incipient language skills and/or rather inarticulate about what they notice. Scientific psychology is in a state of theoretical disarray on the subject of language development. The confrontation of the 1960s between behaviourist and transformational grammatical perspectives is still unresolved and yet it has been somewhat overshadowed by the emergence of semantically and pragmatically based theories of communicative competence. Two important recent growth-points in techniques of intervention are the instruction of children in simplified sign-language systems, Kiernan (1985a) and the at-

tempt to restructure the pattern of everyday communicative interaction between mother and child. The assessment implications of both these apparently powerful new technologies probably include several dimensions beyond the scheme elegantly presented by Jeffree (1986). There is an urgent need for detailed empirical studies of the course of early language development among both rural African children and also children growing up in the fluid, multi-lingual environment of African cities (Serpell, 1986).

Problems with social cooperation are a common reason for initial referral of children for psychological assessment. Yet, surprisingly little guidance is offered by the major published tests and scales on how to classify or to rate behaviour in this domain. Behaviour modification techniques, which can lay claim to considerable success in the amelioration of such problems begin with a functional analysis, which emphasises the controlling influence on environmental contingencies over problem behaviours (Kiernan, 1985b).

#### **Assessment of the Environment in Search of Intervention Resources**

The interdependence of the social behaviour of children with that of their regular caregivers is one of several reasons for extending the scope of psychological assessment to include the family, the home and the community. A caregiver may unwillingly be maintaining undesirable behaviour by the child. She/he is also in a strategically powerful position to stimulate, shape and maintain desirable new behaviours and to cultivate valuable new skills. If this theoretical potential is to be realised in the context of an intervention programme, the caregiver's own needs and skills have to be assessed. These in turn cannot be understood in isolation from the dynamics of the family and the community. Indeed the amelioration of a young child's developmental disabilities may be better construed as a part of the larger task of helping the caregiver to cope.

The definitions favoured by different cultures, and by different families of what constitute the goals of child-rearing, and what dimensions of the regular effective environment which are conducive to the attainment of those goals was the subject investigated by Serpell (1986) in Zambia.



One of the products of the study which was field-tested is a Home Environment Potential Assessment Schedule, related to (but wider in scope than) Caldwell & Bradley's home Inventory (Caldwell & Bradley 1984). One of the potential application envisaged for such an instrument is the identification of key resource persons in the home environment of a child with (or at risk for) developmental disability, who are likely to be able and willing to take responsibility for ameliorative (or preventive) intervention activities.

#### **Some Specific Instruments Used for Psychological Assessment of Intellectual Disabilities in Young Children in Zambia**

##### **The Ten Questions Checklist (TQ)**

Field-tested on a sample of 1,126 children aged 3-9 in a rural area of Zambia's Eastern Province, as part of the International Pilot Study of Severe Childhood Disability (IPSSCD) Belmont (1984), this instrument had greater sensitivity and specificity than a much longer and more complex Childhood Disability Questionnaire (CDQ). The TQ is addressed to a regular caregiver and solicits his/her recollections about early developmental milestones, his/her assessment of the child's verbal comprehension, learning ability, and speech and his/her impressions of whether the child is 'backward' as well as enquiring about sensory and motor difficulties and fits. In the IPSSCD, a report of any problem was taken as the criterion. Further work might examine the possibility of using the various items as a scale or scales. At present, the TQ can be regarded as a simple screening instrument suitable for preliminary detection/identification by front-line service personnel without any special training in assessment.

##### **The Learning Disability/Mental Handicap Record Form (LD/MH)**

During the pre-pilot phase of the IPSSCD(1981) the CDQ was administered to two groups of 15 children each in Lusaka, one comprising children classified as severely mentally handicapped by the hospital day care centre, the other a random sample in a low-income suburb (Serpell & Ng'andu, 1981). Items which discriminated well were included in the LD/MH assessment procedure developed for use in the Zambia National Campaign to Reach Disabled Children (ZNCRDC) in 1982. This was used by 165 Ascertainment officers who received less than one week of training in its use before deployment in all 57 Districts of Zambia.

The LD/MH Form has three parts. Part A is an eight question interview with a caregiver; part B is a seven item (mainly verbal) test of the child; part C briefly rates the reliability of the

caregiver as informant about the child and the level of the child's activity during part B. Scoring is very conservative, requiring that a child of 5-9 years old show problems on four items in each of parts A and B to qualify for the designation 'probably learning disabled'. The Provisional Care Plan indicated for such children was to advise the family on teaching of appropriate skills and the supply of relevant training packages from the CBR manual (WHO, 1980). About 800 children were registered on this basis in 1982, but follow-up was very patchy (Serpell & Nabuzoka, 1985). The rationale for the cautious approach to detection adopted was that in the absence of well-developed ameliorative service, ascertaining and labelling a child as mildly retarded could often be disadvantageously stigmatising, without any significant help being provided.

#### **The Preliminary Psychological Assessment (PPA)**

This was designed for use by trained psychologists in the course of the Professional Review of a sample of cases screened with CDQ and TQ in the IPSSCD. It covers the five broad domains listed in Fig 1 and includes a 6th section entitled "Academic" for those children enrolled in school. A checklist of topics for rating on a 3 or 4-point scale is provided under each domain, and the outcome for each domain is summarised as '*no serious problems found*', '*more information needed*', or '*child seems to have a serious problem*'.

#### **The Hand Positions Test (HPT - Form B)**

Originally designed for an experimental study in 1971 this non-verbal test has proved to be easy to communicate to severely intellectually disabled (SID) children. The child is required to copy (mimic) a series of positions (configurations) of the tester's hands. Small samples of rural and urban Zambian children were tested, as well as groups of normal and SID children in England, suggesting a strong relation with age and intelligence, but none with gender or cultural variation. Larger standardization samples, improved methods of training testers and a refined scoring system are required.

#### **The Panga Munthu Test (PMT) or in Shona (Vumba Munhu)**

This test originated from the same study as HPT but has since been developed more systematically. Ezeilo (1975) refined and extended the scoring system and obtained clear relations with age and other indices of intelligence. Sizeable normative samples were tested in Lusaka and in two rural areas (unpublished data by Kathuria, Lamping-Paffen and Serpell). The test consists of making a model of a person out of clay (plasticine) which is then scored for detail

and proportionality.

It is clear from this brief listing that there is a serious dearth of normative data with which to compare the behaviour of young African children referred for in-depth psychological assessment. Particularly serious is the total absence of data concerning the range of normal variation in the domains of expressive language and social cooperation.

### Recommendations

- a) Assessment for the purpose of detection and identification of children at risk for developmental disabilities and/or mental handicap should focus on getting such children and their families in touch with relevant, effective and accessible services. Primary health care and community development workers should receive training in the use of simple checklists in the context of growth monitoring and health education. Children identified in this way would be described in cautious terms with an emphasis on positive prospects of amelioration in order to minimise stigmatization. The principle criteria of a problem should be discontinuities or lack of progress in the course of the child's development.
- b) There is a need to establish at district and community levels a cadre of personnel with more specialised training to conduct diagnostic/prescriptive assessment. Such assessment should not make use of foreign norm-referenced tests for which no local standardization is available, since results obtained by doing so may be seriously misleading for parents, for service personnel and for planners.
- c) Unless and until suitable, locally standardised tests are available, a profile referenced approach should be used (covering the domains of Figure 3) to assess the weaknesses and strengths of the child as a guide to ameliorative intervention.
- d) Unless and until specially trained staff are available, diagnostic/prescriptive assessment should be conducted on the basis of consultative team-work. At least one person with training in each of the fields of education, medicine and social work or community development should participate in the consultation together with one of the child's regular caregivers.
- e) The principles of monitoring change and evaluating the impact of intervention with criterion-preference constitute an ideology which serves widespread promotion.



The inroads which it has already made in the teaching profession should be consolidated by deploying teachers as trainers of other people in these techniques. Parents of children with developmental disabilities should be one of their target groups for such training in the context of home based learning programmes. Another target group should be school children in the context of child-to-child programmes. Intersectoral seminars should also be organised at district and community levels for teachers to share their knowledge of monitoring and evaluation techniques with health workers and community development workers.

- f) In the medium-terms there is a need for the systematic development and standardisation in Africa of tests, for several of the assessment functions cited above. Every opportunity should be taken to enable psychologists in whatever region to share relevant ideas and experience. Correspondence is not enough. Assessment procedures should be observed in action and cross-national collaborative research should be undertaken.

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